

Atlantic Richfield Company

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June 18, 2010

Ms. Nadia Hollan
Remedial Project Manager
U.S. Environmental Protection Agency - Region 9
75 Hawthorne Street, SFD-8-2
San Francisco, California 94105

Subject: Responses to EPA May 3, 2010 Comments on the Draft Implementation Work Plan dated November 4, 2009 - Evaporation Ponds Removal Action, and Submittal of the Revised Implementation Work Plan; Administrative Order on Consent and Settlement Agreement for Removal Action and Past Response Costs, EPA Region 9 Docket No. 09-2009-0010

Dear Ms. Hollan:

Atlantic Richfield Company (ARC) has prepared the attached responses to comments on the Draft Implementation Work Plan (Work Plan) dated November 4, 2009 for the Evaporation Ponds Removal Action at the Yerington Mine Site (Site). The comments were provided to ARC by the U.S. Environmental Protection Agency - Region 9 (EPA) on May 3, 2010. The removal action and Work Plan is required under the Administrative Order on Consent (AOC) and attached Scope of Work (SOW)¹ dated April 21, 2009. In addition the attached responses address comments provided to EPA by the Yerington Paiute Tribe (YPT). EPA March 18, 2010 correspondence to ARC indicated the following with regard to the removal action:

"With regards to the thumb pond and 'Sub-Area A' of the Sulfide Tailings, ARC should move forward with plans to cover these areas with VLT material as set forth in the AOC. These particular actions were intended to complete and/or repair previous VLT cover in these areas, and could be implemented in the near term to prevent additional exposure of fugitive dust from the exposed areas without impacting the potential remedial options. Therefore, EPA approves the November 13, 2009 VLT Characterization Work Plan using XRF Work Plan which will pilot the ability for the XRF to be used in the field as a sampling tool during the response action. EPA will provide comments on the November 4, 2009 Draft Implementation Work Plan pertinent to the thumb pond and Sub Area A cover shortly."

As discussed in a teleconference on May 14, 2010, ARC agreed to: 1) submit the revised Evaporation Ponds Removal Action Implementation Work Plan for the construction of interim covers only on the Thumb Pond and 'Sub-Area A' to EPA on or before June 18, 2010; and 2) characterize the sub-surface under 'Sub-Area A' immediately after the construction of the interim cover to assess current conditions (i.e., prior to the 2010-2011 precipitation season).

¹ Administrative Order on Consent and Settlement Agreement for Past Response Costs Anaconda Copper Mine, Yerington Nevada; U.S. EPA Region IX; CERCLA Docket No. 09-2009-0010.

Ms. Nadia Hollan
U.S. EPA - Region 9
June 18, 2010
Page 2

The scope of this sub-surface characterization activity is described in the attached revised Work Plan, and is intended to satisfy YPT's concerns about the use of VLT for interim cover materials brought forward in a letter to EPA dated April 22, 2010.

In addition to preparing hard copies of the revised Work Plan for EPA and a number of the copied recipients indicated below, the Implementation Work Plan Revision 1 Evaporation Pond Removal Action has been uploaded to the Tetra Tech/EPA Anaconda Document Library (SharePoint Partners Website <https://partners.ttemi.com/sites/epanevada/default.aspx>) in the folder entitled Implementation WP Rev 1 Evap Pond RA June 2010.

If you have any questions regarding ARC's attached responses to EPA comments on the draft Work Plan, and the submittal of the revised Work Plan, please contact me at (714) 228-6774 or via e-mail (jack.oman@bp.com).

Sincerely,



Jack Oman
Project Manager

cc: Dave Seter, EPA
Jere Johnson, EPA
Mike Montgomery, EPA
Robert Blank, EPA
Andrew Helmlinger, EPA
Tom Dunkelman, EPA
Joe Sawyer, NDEP
Tom Olsen, BLM
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**EPA Comments dated May 3, 2010 on the Draft Implementation Work Plan dated November 4, 2009
Regarding the Evaporation Ponds Removal Actions**

EPA General Comments #1:

Based on the objectives outlined, the concepts for the work as specified in the draft Implementation Work Plan for the Evaporation Ponds Removal Action, appear to be founded in proven site specific technologies and experiences, but the scope of the work appears to need refinement to ensure the schedule and budgets are sufficiently accurate and that the response actions will work on the scale presented.

ARC Response:

The Work Plan has been revised based on the following EPA comments and the teleconference with EPA on May 14, 2010. As, discussed, ARC will likely need to supplement the Work Plan with information based on the means and methods developed by the selected contractor for the removal action, and will provide this information to EPA prior to construction.

EPA General Comment #2:

Plan lacks specific details on how monitoring will be performed and what action levels will be used to determine effectiveness of dust control.

ARC Response:

Per the May 14, 2010 teleconference, action levels are provided in the response to specific comments (see below). A detailed dust control plan, to be developed by the selected contractor, will be submitted to EPA prior to construction.

EPA General Comment #3:

Precipitation/evaporation information requested during the August 6, 2009 meeting that were used/referenced by ARC to calculate soil moisture plus PET versus percolation plus infiltration (e.g. VLT storage capacity) could not be located. These discussions and corresponding calculations could not be found in the work plan, but should be presented and discussed.

ARC Response:

Section 4.2 of the draft Work Plan presented this information to demonstrate the intent of the interim cover design (i.e., using VLT materials for the lined evaporation pond [LEP] to store and evaporate the average annual precipitation for the Site). Given the uncertainty related to the use of VLT for this application, and the fact that the revised Work Plan only addresses Sub-Area A and the Thumb Pond, ARC has not provided the requested calculations in the revised Work Plan. When the implementation work plan for the LEP is developed in the future, if appropriate, these calculations will be provided for the selected material type to be used as the interim cover.

**EPA Comments dated May 3, 2010 on the Draft Implementation Work Plan dated November 4, 2009
Regarding the Evaporation Ponds Removal Actions**

EPA Specific Comments #1:

Section 4.0 Pages 9 and 10, Section 7.0 Page 18, Plan Sheet 136742-C-300:

LEP compaction of 85 percent Modified Proctor at optimum moisture is proposed, but there is nothing stated for compaction of the Dust Mitigation Covers in Section 4.0. Also, on plan sheet 136742-C-300, Section 2 Note 2 and Section 3 Note 4 states that a 90% Modified MDD within 2% OMC be used for the haul roads. Is this consistent with what is stated in Section 4.0 and Section 7.0?

ARC Response:

The 85% vs. 90% values presented in the draft Work Plan reflected the different design objective for the LEP interim cover vs. the objective for the other evaporation pond covers and haul roads, respectively. The LEP design objective was to provide adequate soil moisture storage, which is not needed for the other pond covers or haul roads. Therefore, the revised Work Plan only describes the 90% Modified Proctor value.

EPA Specific Comments #2:

Section 5.0 Page 12:

VLT quantities for the UEP, LEP, Thumb Pond, Sub-Area A and all Roadways within the site have been provided. What calculations were used to determine the quantities for the Thumb Pond and Sub-Area A? Using the areas provided in Section 2.0, and the depths of VLT proposed in Section 4.0, the quantities referenced aren't accurate. Basic calculations on how all quantities shown were determined should be provided and discussed.

ARC Response:

Material quantities presented in the draft Work Plan for the pond covers and the roadways were calculated using AutoCAD 2010 Civil 3D software, based on the average end area method and triangulated irregular networks (TINs). Existing surface TINs were constructed using the survey data presented Drawing Nos. 136742-C010 through C-014. The TINs for the cover design elevations were constructed for the VLT and Sub-Area A by raising the existing survey data points by 18 or more inches, depending on the pond area and required thickness, and creating a new surface. Fundamentally, this is an area x height = volume calculation. Material quantities presented in the revised Work Plan have been calculated in the same manner, and a more detailed description of the method is presented in the revised Work Plan.

EPA Comment #3:

Section 5.0 Pages 12, 13 and 14 Figure 5-1:

Proposed haulage routes are mentioned and displayed in Figure 5-1. A disconnect exists between the main haul road and the North VLT Borrow Source Area on the graphic.

**EPA Comments dated May 3, 2010 on the Draft Implementation Work Plan dated November 4, 2009
Regarding the Evaporation Ponds Removal Actions**

ARC Response:

Figure 5-1 was developed as a schematic diagram to provide an overview of the project area in the draft Work Plan. This figure has been modified for inclusion in the revised Work Plan to show the connection with the borrow area roads and the modified (i.e., reduced area) borrow source areas.

EPA Comment #4a:

Section 6.0 Page 15, last paragraph:

A discussion should be included to provide detail on specified monitors. Do they have EPA Federal Reference Method (FRM) or equivalent designation/approval? How will they be operated and calibrated, how will data be downloaded and managed, and will QA objectives will be established?

ARC Response:

The revised Work Plan provides the information requested in this comment. ARC plans to use equipment and stations previously used for the three-year Air Quality Monitoring Program (AQM): Tisch Environmental TE-6070D High Volume PM₁₀ monitors (FRM designation RFPS-0202-141) at AM-2, AM-5, and AM-6; and a TEOM Series 1400a Ambient Particulate Monitor (FRM designation EQPM-1090-079) at AM-6. Specific details on operation, calibration, data management, and quality review objectives are provided in the *Air Quality Monitoring Work Plan, Yerington Mine Site, Revision 2*, prepared by Brown and Caldwell on September 12, 2007 (BC, 2007). These details are also included as an appendix to the revised Work Plan.

To evaluate the performance of the Contractor in implementing fugitive dust controls during the removal action, ARC plans to use Thermo Electron aDR-1200S Ambient Particulate Monitors (or equivalent). These monitors are widely used in the industry and are manufactured by a highly reputable company. The monitors don't have FRM designation because they are generally not used for complying with the Clean Air Act and, in general, not typically applicable to construction projects. However, they are well suited for real-time monitoring of PM₁₀ in remote locations without permanent electrical supply. Operation and calibration will be conducted per the manufacturer specifications. The monitors are calibrated at the factory prior to shipment, and will be zeroed by ARC field staff prior to each day of operation. Data will be downloaded daily and stored in the site database. Quality review objectives will be similar to those proposed for the TEOM monitors in the AQM Work Plan (BC, 2007).

**EPA Comments dated May 3, 2010 on the Draft Implementation Work Plan dated November 4, 2009
Regarding the Evaporation Ponds Removal Actions**

EPA Comment #4b:

Section 6.0 Page 15, last paragraph:

Operational parameters for monitors should be tied to specific action levels. Proposed action levels for air monitoring are provided in the following table (ARC has not attached the table to these responses to comments):

ARC Response:

The action levels and criteria proposed by the EPA in the table referenced in this comment are acceptable and are included in the revised Work Plan. Using the DR-1200S portable meters, an Action Level 1 of PM₁₀ at 500 µg/m³ over a 15-minute sampling interval will trigger a notification to the Contractor to increase dust control measures and requires visual monitoring of the equipment display to ensure levels fall below Action Level 1. Action Level 2 at 1.0 mg/m³ triggers a notification to the Contractor to increase dust control measures, a notification to the site manager and EPA, and requires visually monitoring the equipment display to ensure levels fall below Action Level 1. Action Level 3 at 2.5 mg/m³ triggers a temporary stop work notification to the Contractor, and a notification to the site manager and EPA. The Site manager and Contractor will meet to discuss the need to modify site operations and/or dust control measures. Approval from the site manager and EPA is required to resume work and the equipment display will be monitored visually to ensure levels fall below Action Level 2. An additional criteria separate from particulate monitoring is also imposed on the Contractor: if any 15-minute average wind speed measured at the site meteorological station at AM-6 exceeds 25 mph, work will be suspended until wind drops below this level.

EPA Comment #5:

Page 16, 2nd Paragraph:

No information is provided on the frequency and duration of monitoring at AM-2, AM-5, and AM-6. Additionally, this monitoring should have specific objectives so that data can be correlated to site activities (see above).

ARC Response:

The frequency and duration of monitoring proposed by the EPA in the comment table are acceptable and have been included in the revised Work Plan. Background samples will be collected at all three permanent locations (AM-2, AM-5, and AM-6) for two 8-hour periods prior to start of earthwork activities. Construction activity samples will be collected at all three permanent locations for two 8-hour periods during the first week of full-scale operations. Additional samples will be collected if Action Level 3 is exceeded. The TEOM at AM-6 will operate continuously during construction activity. If the 1-hour average PM₁₀ exceeds 300 µg/m³, the ACCU will automatically collect a sample on a 47-mm Teflon filter for up to 4 hours.

**EPA Comments dated May 3, 2010 on the Draft Implementation Work Plan dated November 4, 2009
Regarding the Evaporation Ponds Removal Actions**

EPA Comment #6:

Plan Sheet 136742-G-002 and 1376742-C100:

A similar line style and color is used on these sheets to show the Mine Site Boundary and the Proposed Haul Roads. Consider revising for clarify.

ARC Response:

Two different line types have been used to more clearly differentiate between proposed haul roads and the Site boundary in the revised Work Plan.

EPA Comment #7:

Plan Sheet 136742-C-101:

Some of the horizontal curve radii shown in the table don't meet the 25 mph design speed outlined referenced on Plan Sheets 136742-C-110 to Plan Sheet 136742-C-192 according to AASHTO. It is noted that these are site construction type roads, but some consideration should be given to the ASSHTO standards.

ARC Response:

The revised Work Plan indicates that: 1) the 25 mile-per-hour speed limit is a general Site-wide maximum; and 2) the Contractor will post speed limits along haul roads that would limit truck speeds relative to specific road geometry (e.g., ramps, curves, etc.). ARC will require the contractor to perform the removal action safely in the context of the proper standard of practice (SOP) of measurable metrics for haul roads and to implement a traffic control plan for existing haul roads which is consistent with the equipment being operated. In lieu of AASHTO standards that are more appropriate for public highways and roads, the revised Work Plan includes design criteria that are consistent with the following U.S. Mine Safety and Health Administration document:

HAUL ROAD INSPECTION HANDBOOK, Handbook Number PH99-I-4, MSHA Handbook Series U. S. Department of Labor Mine Safety and Health Administration, Coal Mine Safety and Health, Metal and Nonmetal Mine Safety and Health, June 1999 (website: <http://www.msha.gov/READROOM/HANDBOOK/PH99-I-4.pdf>).

EPA Comment #8:

Plan Sheet 136742-C-110 to Plan Sheet 136742-C-192:

On all the profiles shown on these sheets there isn't any vertical curve information. Grades along tangents, PVCs, PVIs, K-Values, Length of Curve, and grades in and out of curves should all be shown. Also the existing ground and proposed roadway lifestyles are too similar.

**EPA Comments dated May 3, 2010 on the Draft Implementation Work Plan dated November 4, 2009
Regarding the Evaporation Ponds Removal Actions**

ARC Response:

The revised Work Plan includes the requested information. The plans are presented in plan and profile with fonts and line-types that are consistent with current standards of practice for this type of design document.

EPA Comment #9:

Plan Sheet 136742-C-100 to Plan Sheet 136742-C-192:

The scales on all the plan and profiles shown on this series of sheets are too variable. One scale should be used for all sheets. There are also multiple text conflicts with EOP lines and horizontal stationing.

ARC Response:

Plan sheet scales vary to present necessary level of detail as efficiently as possible. A scale of 1 inch = 40 feet is used for the Thumb Pond and Sub Area A where haul roads will be constructed to surveyed alignment and grade requirements. Lower resolution scales (1 inch = 100, 200, 300+ feet) are used where longer roadway alignments are described with less detail or to present testing, survey and Site boundary information for on a single plan sheet. Text conflicts of proposed construction call outs with stationing and EOP lines in the revised Work Plan have been resolved to the extent possible provided by the AutoCAD Civil C3D software. Additional references on the plan sheets is provided by scaling along the proposed centerline to verify stationing, and a table with stationing data has been added to provide additional clarification.

EPA Comment #10:

Plan Sheets 136742-C-110, -C-120, -C-130, -C-131, -C190, -C-191 and -C-192:

The section cuts on these plans shown on these sheet reference the same cross section detail (Section 3) on Plan Sheet 136742-C-300. Should some of these sections be labeled the “New Road Construction – Soft Sediment” (Section 2?)

ARC Response:

The revised Work Plan addresses this comment.

EPA Comment #11:

Plan Sheet 136742-C-300:

The difference between “classified” and “non-classified” VLT should be explained, in addition to explaining how these types of VLT will be used and whether or not there is a different purpose behind using one or both. This should be explained in the design sections or within the geotechnical data provided in the Implementation Work Plan.

**EPA Comments dated May 3, 2010 on the Draft Implementation Work Plan dated November 4, 2009
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ARC Response:

Classified VLT was a conceptual design element that was discarded as unnecessary for the LEP cover design. All references to this type of material have been removed from the revised Work Plan and associated plan sheets.

EPA Comment #12:

Plan Sheet 136742-C-300:

The scale used for the typical sections should be increased to show a little more detail. Section 2 is particularly confusing. Also it's not clear if the proposed designs described in Section 4.2 and Section 5.1 are consistent with the graphics shown on this sheet.

ARC Response:

The sections on this plan sheet have been revised, as requested, to provide additional clarifying details and the revised Work Plan has been modified to be more consistent with this plan sheet.

EPA Comment #13:

Plan Sheet 136742-C-301:

It's unclear where the details on this sheet are applied elsewhere within the plan set. Section cuts or labels should be shown on other plan sheets to highlight where these details apply.

ARC Response:

This detail was applicable to the LEP as alternatives for pioneering the road on to the soft LEP sediments. This sheet has been deleted from the plan set because this detail is not applicable to the Thumb Pond or Sub Area A.

EPA Comment #14:

Schedule:

A check of the production rates should be made. ARC should confirm the types and quantities of equipment that will be used to yield production rates. This work will yield some intrusion into the Oxide VLT that should be assessed to ensure proposed equipment can navigate the intrusion areas and haul as depicted with the simple arrows in Figure K-2.

ARC Response:

The production rates associated with the draft Work Plan were based on a larger-size scraper fleet than is needed for the significantly reduced volume of cover materials for Sub Area A and the Thumb Pond. The revised Work Plan addresses this modification, and presents the production rates for the ARC-recommended equipment to be used for the Thumb Pond and Sub Area A covers.

Responses to YPT Comments dated April 22, 2010 on the Draft Implementation Work Plan dated November 4, 2009

YPT Comment #1:

Potential shallow groundwater/sediment interaction issues identified in the attached A Scoping Analysis prepared by McGinnis and Associates LLC for the Yerington Paiute Tribe and previously provided to U.S. EPA. In response to this, Nadia Hollan and her supervisor, Roberta Blank, have indicated a second review is being completed by their contractors. No delivery date has been provided for the EPA document.

ARC Response:

ARC understands that: 1) a discussion of shallow groundwater conditions beneath the lined and unlined evaporation ponds will be an agenda item for the upcoming groundwater technical meeting on June 24, 2010 and a meeting regarding the evaporation ponds on July 15, 2010; and 2) implementation of the planned Cover Materials Work Plan may result in other (i.e., non-VLT) materials being placed on the lined and unlined evaporation ponds. Pending the outcomes of the meetings and cover materials characterization, ARC anticipates that a decision can be made relative to the placement of interim covers on the lined and unlined evaporation ponds in 2011.

YPT Comment #2:

Quality of the VLT cover material. Although this document does provide additional information on the cover material, questions remain unresolved regarding the chemical characteristics. Documents regarding screening using XRF and questions raised by U.S. Fish and Wildlife regarding elevated copper and other site related parameters have yet to be completed or addressed.

ARC Response:

Implementation of the planned Cover Materials Work Plan and the VLT XRF Characterization Work Plan will result in additional chemical data (whole rock analyses and leach test results) for the potential VLT cover materials. Based on the data from these characterization activities, ARC anticipates that a rationale decision can be made relative to the placement of interim covers on the Thumb Pond and Sub Area A in 2010 and the lined and unlined evaporation ponds in 2011.